Artificial Intelligence
Assignment 2

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2020528

To Run the Assignment:-

- Step 1:
  Run the file "preprocessor_2020528.c" and a csv file "capitalroaddistance.csv" will be created with preprocessed data.
- Step 2:
  Run the file "dijkstra_2020528.py" and a csv file "heuristics.csv" will be created with heuristics data for the assignment. (I Have used the Dijkstra's Algorithm)
- Step 3:
  Run the file "A2_2020528.pl" and input start.
  Enter Data in Capital case only.

Note:
For the assignment I am submitting the files "capitalroaddistance.csv" and "heuristics.csv" and running step 3 directly will also work.

Sample Run :

```
nakul@nakul-IP5:~/Desktop/AIA2$ swipl -s A2_2020528.pl
Welcome to SWI-Prolog (threaded, 64 bits, version 8.4.3)
SWI-Prolog comes with ABSOLUTELY NO WARRANTY. This is free software.
Please run ?- license. for legal details.

For online help and background, visit https://www.swi-prolog.org
For built-in help, use ?- help(Topic). or ?- apropos(Word).

?- start.

Road Distance System:-

Enter the source city:
|: 'DELHI'.

Enter the destination city:
|: 'BOMBAY'.

Which algorithm do you want to use:
1. Depth First Search
2. Best First Search
|: 1.

The Path found by Depth First Search Algorithm:
1. DELHI
2. AGARTALA
3. AHMEDABAD
4. AGRA
5. BANGALORE
6. ALLAHABAD
7. BHUBANESHWAR
8. AMRITSAR
9. BOMBAY


The Cost of Path: 15588
true.
```

```
?- start.

Road Distance System:-

Enter the source city:
|: 'DELHI'.

Enter the destination city:
|: 'BOMBAY'.

Which algorithm do you want to use:
1. Depth First Search
2. Best First Search
|: 2.

The Path found by Best First Search Algorithm:
1. DELHI
2. BOMBAY


The Cost of Path: 1404
true.
```

```
?- start.

Road Distance System:-

Enter the source city:
|: 'AGRA'.

Enter the destination city:
|: 'GWALIOR'.

Which algorithm do you want to use:
1. Depth First Search
2. Best First Search
|: 1.

The Path found by Depth First Search Algorithm:
1. AGRA
2. AHMEDABAD
3. AGARTALA
4. BANGALORE
5. ALLAHABAD
6. BHUBANESHWAR
7. AMRITSAR
8. BOMBAY
9. ASANSOL
10. CALCUTTA
11. BARODA
12. CHANDIGARH
13. BHOPAL
14. COCHIN
15. CALICUT
16. DELHI
17. COIMBATORE
18. HYDERABAD
19. GWALIOR


The Cost of Path: 30395
true.
```

```
?- start.

Road Distance System:-

Enter the source city:
|: 'AGRA'.

Enter the destination city:
|: 'GWALIOR'.

Which algorithm do you want to use:
1. Depth First Search
2. Best First Search
|: 2.

The Path found by Best First Search Algorithm:
1. AGRA
2. KANPUR
3. GWALIOR


The Cost of Path: 570
true.
```